

# **Dynamics of a GPCR studied with single-molecule microscopy**

**Sandra de Keijzer**



# **Dynamics of a GPCR studied with single-molecule microscopy**

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Prof. dr. T. Schmidt  
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**Copromotor:**

Dr. B.E. Snaar-Jagalska

**Referenten:**

Prof. dr. P.N. Devreotes (Johns Hopkins University, School of Medicine, VS)  
Prof. dr. C.J. Weijer (University of Dundee, United Kingdom)

**Overige leden:**

Prof. dr. P.H. Kes  
Prof. dr. P.J.J. Hooykaas  
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**Voor mijn ouders**



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## Abbreviations

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|       |   |
|-------|---|
| AC    | adenylyl cyclase  |
| cAMP  | cyclic adenosine monophosphate                            |
| cAR   | cAMP receptor   |
| CCD   | charge coupled device                                     |
| cGMP  | cyclic guanosine monophosphate                            |
| ConA  | concanavalin A  |
| CRAC  | cytosolic regulator of adenylyl cyclase                   |
| DNA   | deoxyribonucleic acid                                     |
| DMPE  | 1,2-dimyristoyl- <i>sn</i> -glycero-3-phosphoethanolamine |
| DOPE  | 1,2-dioleoyl- <i>sn</i> -glycero-3-phosphoethanolamine    |
| ERK   | extracellular-signal-regulated kinase                     |
| EYFP  | enhanced yellow fluorescent protein                       |
| FWHM  | full-width-at-half-maximum                                |
| FRET  | fluorescence resonance energy transfer                    |
| Gbp   | cGMP-binding protein                                      |
| GC    | guanylyl cyclase  |
| GDP   | guanosine 5'-diphosphate                                  |
| GEF   | guanine nucleotide exchange factor                        |
| GFP   | green fluorescent protein                                 |
| GPCR  | G-protein coupled receptor                                |
| GTP   | guanosine 5'-triphosphate                                 |
| HEK   | human embryonic kidney                                    |
| LF    | low fluorescence  |
| MAPK  | mitogen-activated protein kinase                          |
| MIHCK | myosin I heavy chain kinase                               |
| mRFP  | monomeric red fluorescent protein                         |
| MSD   | mean square displacement                                  |
| MW    | molecular weight  |
| PAK   | p21-activated protein kinase                              |
| PB    | phosphate buffer  |
| PCR   | polymerase chain reaction                                 |
| PDE   | phosphodiesterase E                                       |
| PH    | pleckstrin homology                                       |
| PI3K  | phosphatidylinositol 3'-kinase                            |
| PLC   | phospholipase C   |

|        |  |
|--------|--|
| PKA    | protein kinase A                                       |
| PKB    | protein kinase B                                       |
| POPC   | 1-palmitoyl-- <i>sn</i> -glycero-3-phosphoethanolamine |
| PtdIns | phosphatidylinositol                                   |
| PTEN   | phosphatidylinositol 3'-phosphatase                    |
| SCAR   | suppressor of cAR                                      |
| SNOM   | scanning near-field microscopy                         |
| SMM    | single-molecule microscopy                             |
| TIR    | total-internal reflection                              |
| WASP   | Wiskott-Aldrich syndrome protein                       |
| WAVE   | WASP family Verprolin-homologous protein               |